

air passed along the air tubes or cells; and in the case of a bladder, attached to one of the great bifurcations of the trachea, a sound louder than that in the bronchial tubes was perceived, when the former was contracted to about an inch and a half or two inches in diameter; feebler when larger; and assuming, as its size was increased, a gentle, shrill, ringing, amphoric character. In these different observations, no current of air passed along the parts the subject of examination, but was conveyed away in a manner which our space will not permit us to describe. These experiments were not advanced to prove that the guttural sound, or that which takes place in the superior respiratory passages, is the only source of the respiratory murmurs; but to show that in all probability it exerts a considerable influence, if not in producing, at least in modifying, the different respiratory sounds, known as the vesicular, bronchial, tracheal, cavernous, and amphoric respiratory murmurs, all of which have hitherto been explained according to the views of Laennec.—*Ibid.*

6. Cases in which the ability to distinguish Colours was Defective.—Dr. ELLIOTSON laid before the Phrenological Society of London, at a recent meeting, an account of two gentlemen in whom the power of distinguishing colours was defective, and at the same time presented masks of them. He stated that Gall pointed out that some persons are incapable of distinguishing a marked difference between two colours.

Dr. Elliotson mentioned that the inability to distinguish certain colours was very common, was frequently hereditary, and occurred much more frequently in males than in females. Dr. Nicholl, in the "Medico-Chirurgical Transactions," vol. vii, describes a boy who confounded green with red, and called light green and pink, blue. His maternal grandfather and one uncle had the same imperfection. This uncle was in the Navy, and having a blue uniform coat and waistcoat, purchased a pair of red breeches to match. Dr. Nicholl mentions a gentleman who could not distinguish green from red; grass in full verdure always appeared to him what others called red; and ripe fruit on the trees he could not distinguish from the leaves. A cucumber and a boiled lobster were the same colour in his sight, and a leek resembled a stick of sealing-wax. This person had a brother and a niece, the daughter of another brother, in a similar predicament (L. C., vol. ix.) A similar case is mentioned by Dr. Priestley, in the "Philosophical Transactions" for 1777, and the man had two brothers with the same defect. In the volume for 1778, a similar case is described, in which the gentleman's father, maternal uncle, one sister, and two of her sons, were similarly circumstanced. He mistook pink for pale blue, and full red for full green; all kinds of yellow and blue, except sky-blue, he could distinguish with great nicety. Mr. Combe mentions three brothers and a cousin who inherited the defect from the maternal grandfather, the intervening generation not having it. Professor Dugald Stewart could not perceive any difference in the colour of the scarlet fruit of the Siberian crab and that of its leaves. Sir D. Brewster examined a gentleman who saw only two colours in the spectrum, viz., yellow and blue; when the middle of the red space was absorbed by a blue glass, he saw the black space with what he called the yellow on each side. Dr. Dalton was unable to distinguish blue from pink by daylight, and in the solar spectrum the red was scarcely visible to him. Mr. Troughton had the same defect, and was capable of fully appreciating only blue and yellow colours, and when he names colours, the names of blue and yellow correspond to the more or less refrangible rays, all those which belong to the former exciting the sensation of blueness, and those which belong to the latter the sensation of yellowness, as I find in Sir David Brewster's "Treatise on Optics." This author mentions also a shoemaker at Allenby who was unable from his infancy to distinguish the cherries of a cherry-tree in so far as their colour was concerned. Two of his brothers always mistook orange for grass-green, and light-green for yellow. Hains himself could only distinguish black and white. A tailor at Plymouth regarded the solar spectrum as consisting of only yellow and light. We learn from these cases, said Dr. E., not only that the deficiency may be hereditary, and in all probability occurs most frequently in males, but that the

defect relates most frequently to only one of these primitive colours, and that that one is the red. He then read an account drawn up by two young gentlemen of University College, London, who were deficient in their sense of colour. The first has the ordinary deficiency of insensibility to one colour only, and that colour is red. The other has the rare deficiency of being insensible to two of the primitive colours, so that every thing appears to him as of one colour, and it is not known to which two of the three primitive colours he is insensible.

Dr. Elliotson read the following account written by the gentleman deficient in the red ray:—"The only colours I can recognise with certainty are blue and yellow. The rainbow and prismatic spectrum appear to me to be composed of only two colours, which seem to become gradually intermixed in the centre, and to subside towards the margins. I have not ascertained whether I see the whole breadth of the spectrum, the other colour appearing as blue or yellow, or whether I do not perceive some of them at all. If two colours are placed close together with a well marked line of demarcation between them, I readily perceive that they are not similar, and I believe that it is in consequence of those of the rainbow and spectrum passing in some measure into each other, instead of terminating abruptly by a defined line, that I cannot observe the difference between them; for if I see the prismatic colours painted on paper their dissimilarity is quite evident, although I cannot say, excepting the blue and yellow, what colours they are. I perceive the slightest difference in shade, but in some instances two different colours, several of the shades of red and green, for example, appear to me to be only different shades of the same colour; and, on the other hand, what is only another shade, sometimes appears of a different colour. I have frequently observed that on adding water to tincture of cardamoms, which at first looks red, after the dilution has reached to a certain point the fluid appears to me to change suddenly to blue. I experience greater difficulty in distinguishing very light and very dark shades of colour, the former appearing colourless, the latter black. Transparent substances I distinguish with greater difficulty than opaque. I never could observe any change of colour in the human countenance when viewed by means of the monochromatic light given out during the combustion of alcohol with salt. Blue and yellow, I can always recognise; I never confound these with other colours, and I can discern these when the object is at a distance, or if very minute, as a narrow line or small spot; this I can do with no other colour. The only red colours I can recognise with certainty are bright scarlet and crimson; but the former of these I do not know from grass-green unless the two colours are placed side by side. I have often seen a field completely covered with the blossoms of the common poppy, *papaver rheas*, but never could observe any difference between it and one covered with grass, unless I approached it sufficiently near to observe the individual flowers. Pink or rose, for instance, appears to me blue by day and red by candle-light. Purple looks like dark blue. Many of the shades of red, green, and brown I cannot distinguish from each other. I never could observe the beautiful shades of colour which foliage assumes in autumn, and which I hear so much admired. The only changes I perceive are that some leaves become yellow, and the colour of the remainder less vivid than in summer. Brown appears to me not to be a colour but only a shade, and I imagine that if made very deep it would be identical with black."

The following is the account of the gentleman who is deficient in discerning two primitive colors, but it is not known which of the three these are:—"I can see a difference in colours placed side by side, but cannot state with any degree of accuracy the names of them individually. I would not swear to any colour, but can often guess pretty accurately the colours of many articles, by considering the purposes for which the colours are frequently used; for example, I know grass is green, but if the same colour were shown me in a different form, I, perhaps, should not recognise it as the same. Again, I know gold is yellow, and silver white. I can immediately distinguish, at some distance, a sovereign from a shilling, not by its difference in colour, for that I never think of in forming a judgment, but by their general appearance. I cannot tell a gold from a silver watch by its colour, but if I take it in my hand, I soon can tell the differ-

ence by its weight. I am frequently asked the colour of a window-curtain, and I sometimes guess right, more frequently wrong. I know that curtains are generally either blue, red, or green, and I turn it over in my mind which of the three I think most like. What first called my attention to it was, when at school I was for a short time in the habit of drawing and painting maps; for this I purchased a box of colours; after a time the names were rubbed off; then I could no longer distinguish them, so I was obliged to part with them, as they were useless to me. When in mourning for my father I bought a green coat of a dark colour, and was not aware of my mistake until a friend asked me how long I had left off mourning. I was for several years exceedingly puzzled with the rainbow, which I had heard every body speak of as being so very beautiful; it always appeared to me as a band of a lighter colour than the other part of the sky, but a little darker at one side than the other, and gradually shaded off between the two sides; but this was fully explained when I looked through a prism, which gave me exactly the same appearance, with the exception that I thought I saw through the misty shading an appearance of two or three indistinct colours.

"I have written this as correctly as I can, but cannot state particulars more minutely with any degree of certainty, on account of the difficulty I find in ascertaining my own deficiencies, from not being certain of any colour."

The casts of these gentlemen were then exhibited, and the deficiency in the situation of the organ of colour was very striking. The author took occasion to point out the importance of phrenology not only in determining the faculties of the mind, but in referring various phenomena to their true causes. Without an examination of the development of the brain at a particular spot, in persons remarkable for their acuteness or deficiency of judgment of colours, this would not be ascribed to its true cause, and the most singular explanation would be given of its deficiency; for example, Professor Dugald Stewart ascribes it to a defect in the power of conception, and this as resulting probably from some early habit of inattention. But what particular attention do children who distinguish colors accurately bestow? They distinguish without effort, and those who cannot are not only not proved to have been inattentive, but have most probably been often extraordinarily attentive, in the hope of seeing what others can see. How should want of attention to this one point be hereditary in families, passing through a generation, &c.? This is a specimen of the errors of metaphysicians; they see and generally acknowledge that the brain is the organ of the mind, yet they observe the faculties of the mind without even once considering the organ which possesses, or is employed, in the working of these faculties. Gall examined the two together, and we now know, through him, that local deficiency of brain both exists where the faculty of distinguishing colors is deficient and is hereditary; with this deficiency Dr. Dalton has endeavoured to explain this peculiarity in vision in his own case, by supposing that the vitreous humour is blue, and therefore absorbs a great portion of the red rays and other least refrangible rays; but this opinion, says Sir David Brewster, is, we think, not well founded. Sir David's own opinion, however, is founded no better, for he speaks of the defect as a singular effect of the retina. Sir John Herschell, though no doubt unacquainted with phrenology, adopts the true opinion, and attributes (in the "Encyclopædia Metropolitana") this state of vision to a defect in the sensorium, by which it is rendered incapable of appreciating those differences between rays on which their colour depends.

Dr. Elliotson showed that an advance had been made upon this subject since the time of Gall, by the establishment of the fact that the deficiency related commonly to the red ray, and urged the necessity of collecting as many of these cases as possible, with a view of determining the relative frequency of deficiency in regard to the yellow and the blue ray, and of deficiency in regard to any two of the three primitive rays. He also suggested that it would be interesting to learn whether some cases of blindness, in which the eye appeared perfect, depended upon an inability to discern any of the three primitive rays, and were attended by a total absence of the organ of colour. He also, after remarking that all cases of deficiency of the power of distinguishing colour hitherto

examined, had been attended by a defective development of the organ, suggested that the form and extent of the deficiency of the organ, should be carefully noted in every case, that it might be known what relation, if any, existed between these and the deficiency of judgment.—*Lancet*, July 14, 1831.

7. Weight and Bulk of the Human Heart.—With a view to determine the bulk and weight, absolute and specific, of the human heart, Dr. JOHN CLENDINING examined with care, nearly 400 hearts of persons of both sexes, and all ages above puberty; this organ was then measured in water for bulk, and in the balance for weight, and subsequently classified according to age, sex, and disease. The result was, that the healthy male heart averages for all ages above puberty, about nine ounces, avoirdupois, in weight, and about half an ounce less in bulk; and that the dimensions of the female heart are nearly an ounce less; it was further ascertained that in specific weight the heart varies little, appearing rather to lose in density than gain, by age or disease. It appears, further, from observations made on nearly 200 subjects, that the relative weight of the heart, after puberty, and after death, was to the whole person about 1-160th for the male, and 1-150th for the female: while, with respect to the influence of age, it was proved that the heart rises in weight, both absolute and relative, from infancy to extreme age; the increase amounting in the male, above puberty, to between 6 and 7 per cent. in relative weight, and in the female to as much as 29 per cent., the increase in absolute weight being striking in the males only: viz.—13 per cent.—*Journal of the Statistical Society of London*, July, 1838.

PATHOLOGICAL ANATOMY AND GENERAL PATHOLOGY.

8. On Epidemic Epilepsy in Schools. By Dr. MEVER.—The free school of Bingley is a well-aired, not overcrowded room, in which the boys and girls are taught at the same time. A young girl of the name of Arnold had for some time been subject to epileptic fits, and had been repeatedly seized during the school hours, on which account she was forbidden to attend. Apparently restored to health she was again admitted, but on the 8th of August, 1837, she was again seized, and was in consequence carried home. A few days afterwards a strong healthy girl who had occasionally accompanied Arnold home was seized with convulsions in the school-room; on the 14th two other girls, age respectively twelve and fourteen years, were affected in a like manner; but this did not prevent them from making their appearance at school on the following morning. Scarcely, however, had the business of the day commenced, when not only these two, but likewise three other girls, were affected with epileptic convulsions, and the contagion spread with such rapidity that in less than half an hour above twenty girls were similarly affected.

At first the children experienced a feeling of anxiety; they were then observed to grow pale, there was oppression of the chest, and the head became affected; trembling of the limbs followed with loss of conscience; the thumbs were bent upon the palms, the eyes were distorted, and the patient gave vent to a sudden anxious cry. The paroxysm in some was of short duration, but in others it continued for hours. None of the boys were attacked. The temperature of the room was about 18°R. (72°F.) at noon. None of the girls attacked, except Arnold, had ever previously had an epileptic paroxysm, and no material cause for the disease could be discovered. Most of the girls were approaching the age of puberty, and they were of a highly excitable temperament.

Notwithstanding that the girls who had been affected were not allowed to return to the school for a considerable time, new cases afterwards occurred, owing, it was suspected, to some of the girls who were not completely re-established having been readmitted and having suffered from fresh paroxysms. The disease was treated as purely nervous, with valerian, oxide of zinc, indigo, &c.; but on the whole with little success, for after the lapse of five months there were very few who could be considered as safe against a relapse.